4.1: Communications and Data Access

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2 of 8 Terms of Reference questions are addressed:

Q7: All SWFSC products and publications are peer-reviewed.
Q8: The SWFSC ERD is developing dynamic approaches to communication.

Communications

- Peer Reviewed Publications
  - Stock assessments, STAR panel, etc
  - Top ecosystem journals
  - CalCOFI and CCIEA Synthesis Reports

- Art
  - Green Seas/Blue Seas public art installations
  - AMLR 25th anniversary museum exhibit
- The web
  - Revamped NOAA and SWFSC web sites
  - IOOS
  - Exploratorium
  - NOAA West Watch
  - J. Applied Ecology web blog participant
- News interviews and articles
- Local outreach events
  - Guest lectures at many schools and events
  - UCSC ISEE Inquiry Institute

Ray Troll paintings for green seas/blue seas art
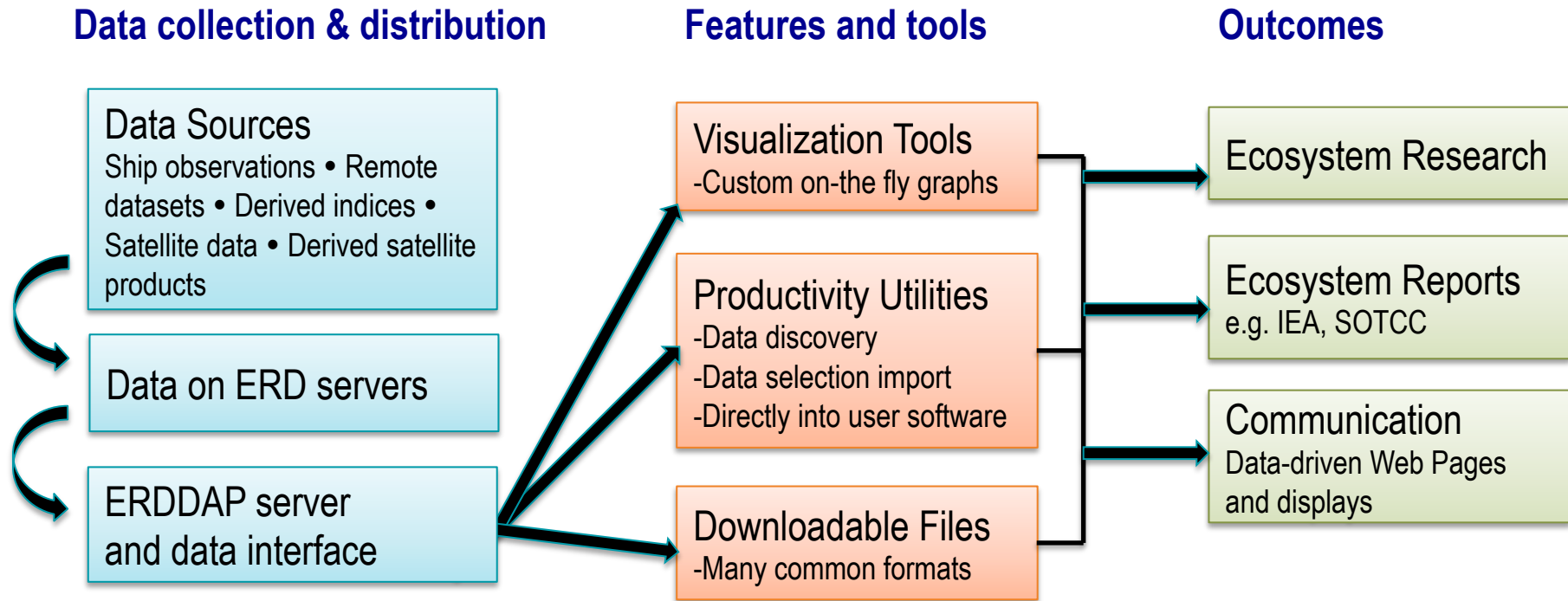
Communications con't

- Councils and Conventions
  - PFMC Science and Statistics Committee
  - CAMLR
- National and international Societies and Journals
  - Ecosystem science is shared at national and international meetings, e.g. AFS and PICES
  - Journal editors
    - Progress in Oceanography
    - Fisheries Oceanography
    - Oceanography
    - Deep Sea Research
    - PLoS One
    - Marine Ecology Progress Series
  - Service on committees and panels
    - PICES ISC
    - PICES working groups (multiple)
    - CLIOTOP task teams
    - IOCCG
    - POSEC
    - Unidata THREDDS Oversight Committee
    - OCG CF-netCDF SWG
    - California Ocean Protection Council Science Advisory Team

Data Searching, Access & Archiving

- PARR: Public Access to Research Results

  - ✓ Metadata access (due 1/31/2016): DONE
    - 100% compliant by providing metadata to InPort
  - ✓ Data access (due 1 May 2016): DONE
    - ERDDAP & CoastWatch
  - ✓ Data archiving (30% by 31 Dec 2016): 100% DONE
    - ERDDAP pushes data to data.gov & noaa.data.gov
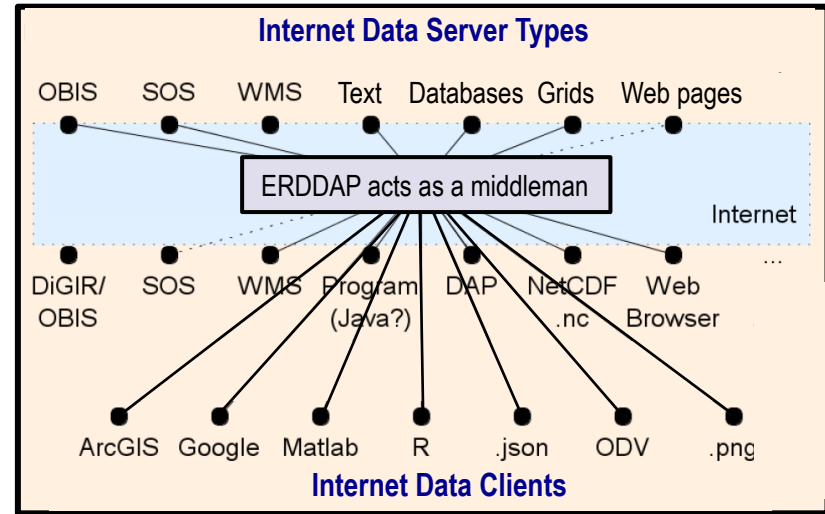
# ERD provides a coherent program to support ecosystem research and communication

Data collection & distribution

Features and tools

Outcomes

Data Sources
Ship observations • Remote datasets • Derived indices • Satellite data • Derived satellite products

Data on ERD servers

ERDDAP server and data interface

Visualization Tools
-Custom on-the fly graphs

Productivity Utilities
-Data discovery
-Data selection import
-Directly into user software

Downloadable Files
-Many common formats

Ecosystem Research

Ecosystem Reports
e.g. IEA, SOTCC

Communication
Data-driven Web Pages and displays

ERDDAP provides users with:

the data they want, at custom spatial and temporal ranges, in the format that works with their preferred analysis tool

- UAF ERDDAP > 6000 datasets
- Serves data from local and remote servers
- It is a web application for humans
- It is a web service for computer programs
- Allows temporal and spatial subsetting
- Most common data and image formats are supported

Internet Data Server Types

OBIS SOS WMS Text Databases Grids Web pages

ERDDAP acts as a middleman

Internet

DiGIR/ OBIS SOS WMS Program (Java?) DAP NetCDF .nc Web Browser

ArcGIS Google Matlab R .json ODV .png

Internet Data Clients

ERDDAP supports on-the-fly image generation through web pages that make it easy to generate custom images

Maps
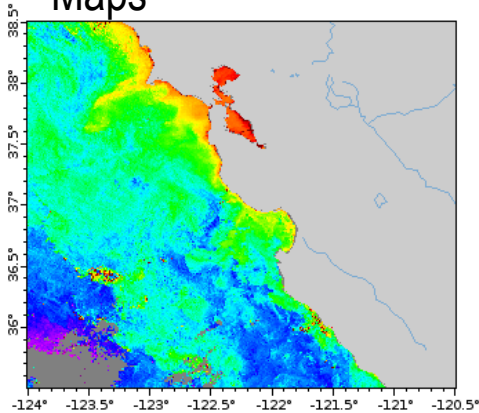
Hovmöller plots
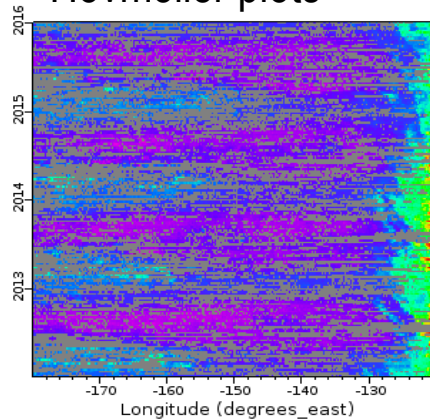
Time series
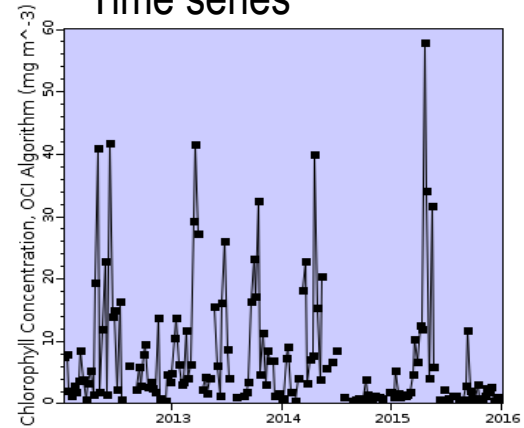
Each plot is menu driven and then generated by a single URL

http://coastwatch.pfeg.noaa.gov/erddap/griddap/**erdVHNchla8day**.**png**?chla[(**2016-01-01T00:00:00Z**)][(0.0)][(**38.5):(35.5)**][(**-124): (-120.5)**]&.draw=surface&.vars=longitude|latitude|chla&.colorBar=|||.1|10|&.bgColor=0xffccccff

Change **.png** to **.nc, .asc, .json, csv**… to download the data

NOAA FISHERIES

Productivity tools address fisheries research needs

Environmental data connector:
Imports data from ERDDAP, OPeNDAP and SOS directly into analytical tools like ArcGIS, Matlab, R and Excel (ASA subcontract)

Xtractomatic routines:
Extracts environmental data from large satellite datasets that correspond to telemetry tracks and ship tracks

Environmental data connector
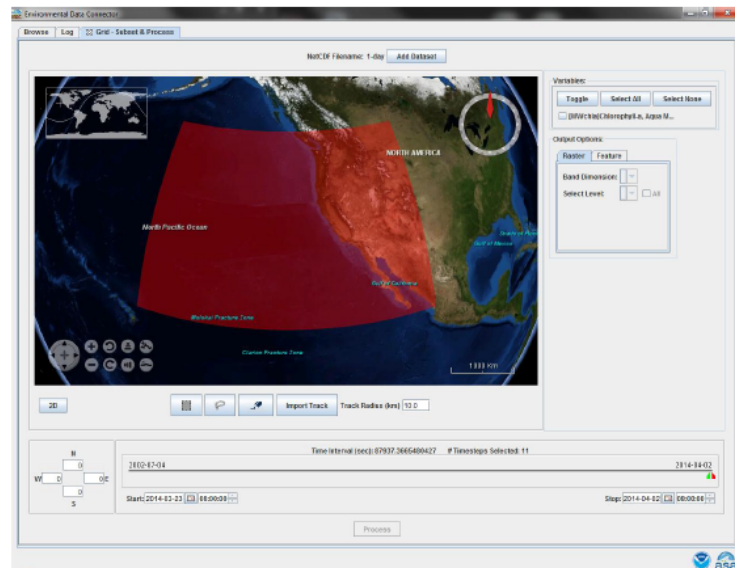
ERD data service drive data-driven displays

http://oceanview.pfeg.noaa.gov/ATN
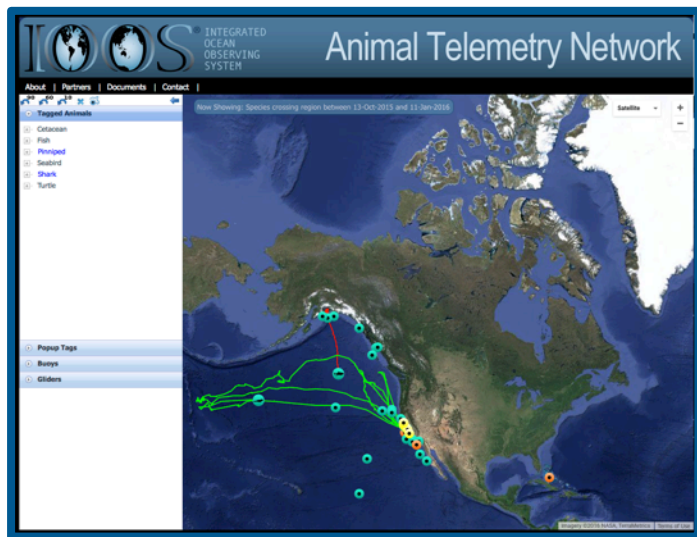
CoastWatch current conditions
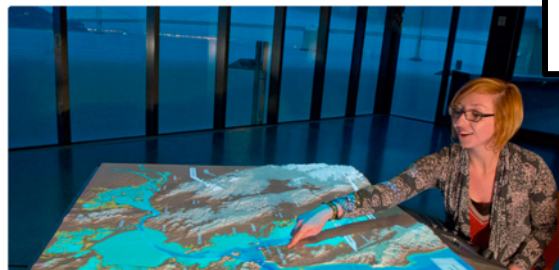
Visualizing the Bay Area
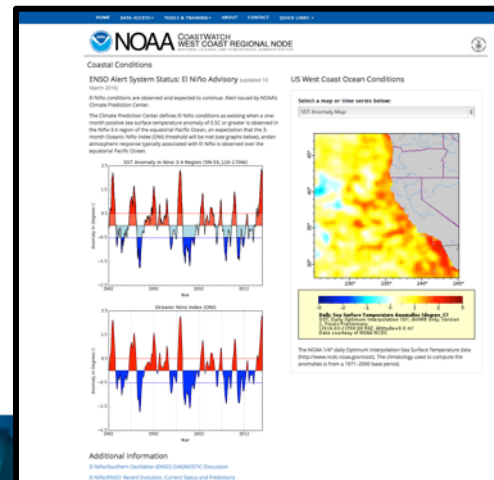
CalCOFI: State of the CA current report is dynamically updated

Embedding URL calls in a script inserts most up-to-date data reports.

In this case, an R script for mixed layer data values with an ERDDAP backend.
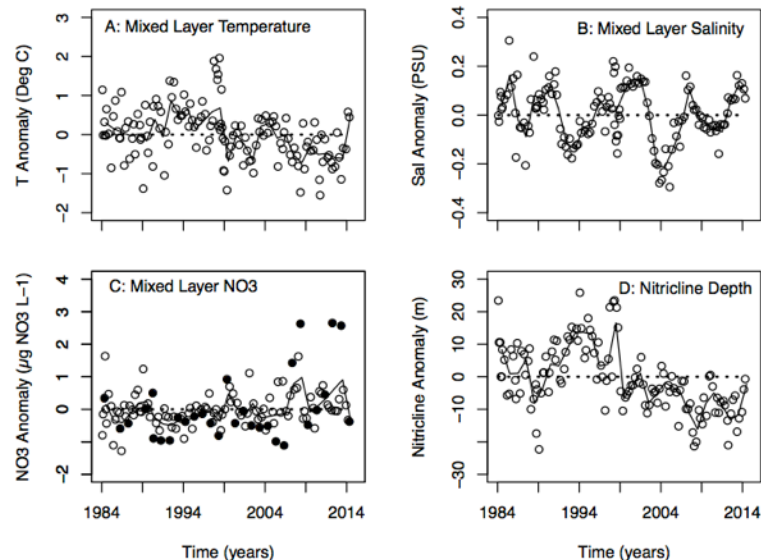
CoastWatch provides outreach and products for SWFSC's data services

Integrated within SWFSC ERD since 2004

Engages with regional ecosystem scientists to provide needed satellite data and data products

Facilitates access and use of SWFSC's data resources

Strengths, Challenges, Strategies:

- **Strengths:**
  - ERD provides a strong ecosystem approach to science,
  - Very strong publication record,
  - Excellent data access,
  - ERDDAP web services installed world wide at over 50 sites,
  - Strong collaboration with NESDIS and other satellite services,
  - ERDDAP and CoastWatch provide robust solution for PARR,

- **Challenges:**
  - After over 10 years, NESDIS CoastWatch coordinator position is still a contractor,
  - NOAA pushing PARR-imposed data availability timeline while still deciding on data standards,

- **Strategies:**
  - Promote ERDDAP and CoastWatch (which work with InPort),
  - Continue web delivery development for CalCOFI and CCIEA.

NOAA FISHERIES

Questions?

and thank you!

A quote from a user who was introduced to ERDDAP in mid January 2016:
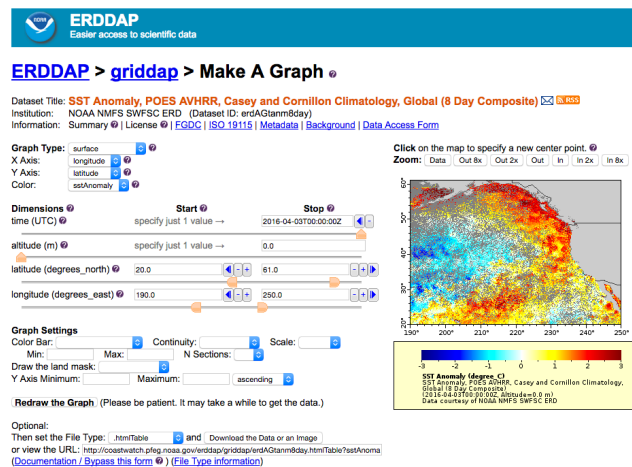
"All I can say is I don't know whether this is a late Christmas or an early birthday for me! This coastwatch.pfeg.noaa.gov/erddap system seems to be *fantastic*!"

-Dan E. Kelley
Professor and Graduate Coordinator
Oceanography Department, Dalhousie University
PO BOX 15000
Halifax, NS B3H 4R2